

WORK STATEMENT

Reducing Greenhouse Gas Emissions through Local Government Action: Case Studies of ~~Five~~ Eight California Cities

Introduction:

Some local governments have begun to experiment with local policy changes that aim to induce the behaviors that will reduce greenhouse gas emissions. This is promising. There are many policy tools within the purview of local governments that have the potential to reduce greenhouse gas emissions. Local governments can and should play an important role by linking state-level priorities to the community-scale actions to achieve individual behavior change. In fact, it is not a question of if, but rather a question of when local governments in California will be required to take action to reduce greenhouse gas emissions.

The effectiveness of local strategies to reduce greenhouse gas emissions – through land use change, transport policies, and other local initiatives – is highly context-specific. Cities have different emission reduction opportunities and face different challenges. Estimates from previous research range from no effect to emission reductions of up to 25 percent for the same policy option, depending on the local context (Walters 2008). For local government climate strategies to be effective, they must be tailored to the situations of the communities where they are implemented. Unfortunately, we cannot yet easily predict how effective strategies will be in a given context.

Project Description:

This project will conduct in-depth case studies of the greenhouse gas emission reduction opportunities in ~~five~~ eight California cities. The focus will be on the transportation and buildings sectors, as these make up the lion's share of greenhouse gas emissions at the local level.

The case study cities are selected from the California cities that have voluntarily joined ICLEI's Cities for Climate Protection and/or the California Climate Action Registry. There will be two southern California cities – one major city and one smaller city, and three northern California cities – one major city, one smaller city within a major metropolitan area, and one smaller city not within a major metropolitan area. Our initial choice of case study cities includes Santa Monica, Los Angeles, San Francisco, Berkeley, and Arcata, but this selection is subject to change.

The in-depth case studies will include extensive contextual background, an analysis of the political drivers of and barriers to local action to reduce greenhouse gas emissions, standardized inventories of the greenhouse gas emissions from light-duty vehicles and building energy use, and a critique of the current climate action plan. In addition, we will produce a "lessons learned" paper, highlighting the opportunities and challenges that are common to all the cities, as well as factors that might explain the differences we see in both emission reduction strategies and their effectiveness.

Project Goals:

The goal of this project is to use these case studies to increase our knowledge about how local governments can use their land use planning and other decision-making power (such as the power to install bicycle and pedestrian infrastructure and require energy-efficient buildings) to help California move toward a lower-carbon future.

TASK LIST SUMMARY

Task #	CPR	Task Name
1		Administration
2		Gather in-depth background information about each city
3		Gather all city documentation related to city energy use and greenhouse gas emissions
4		Documentation of physical urban infrastructure
5		Identify and interview stakeholders
6		Compile emissions inventories for light-duty vehicles
7		Compile emissions inventories for buildings
8		Team meeting (half-day)
9		Write five eight case studies
10		Write “lessons learned” paper
11		Technical Presentations, Fact Sheets, and Webpage Development

GLOSSARY

Acronym	Definition
CCM	Commission Contract Manager
CPR	Critical Project Review
PIER	Public Interest Energy Research
ICLEI	International Council for Local Environmental Initiatives
NCAR	National Center for Atmospheric Research
US	United States
CA	California

TASK 1 ADMINISTRATION**Task 1.1 Attend Kick-off Meeting**

The goal of this task is to establish the lines of communication and procedures for implementing this Agreement.

The Recipient shall:

- ☐ Attend a “Kick-Off” meeting with the Commission Project Manager, the Grants Officer, and a representative of the Accounting Office. The Recipient shall bring its Project Manager, Agreement Administrator, Accounting Officer, and others designated by the Commission Project Manager to this meeting. The administrative and technical aspects of this

Agreement will be discussed at the meeting. Prior to the kick-off meeting, the Commission Project Manager will provide an agenda to all potential meeting participants.

The administrative portion of the meeting shall include, but not be limited to, the following:

- Discussion of the terms and conditions of the Agreement.
- Discussion of Critical Project Review (Task 1.2).
- Match fund documentation (Task 1.6).
- Permit documentation (Task 1.7).

The technical portion of the meeting shall include, but not be limited to, the following:

- The Commission Project Manager's expectations for accomplishing tasks described in the Scope of Work.
- An updated Schedule of Products.
- Discussion of Progress Reports (Task 1.4).
- Discussion of Technical Products (Product Guidelines located in Section 5 of the Terms and Conditions).
- Discussion of the Final Report (Task 1.5).

The Commission Project Manager shall designate the date and location of this meeting.

Recipient Products:

- ☐ Updated Schedule of Products
- ☐ Updated List of Match Funds
- ☐ Updated List of Permits

Commission Project Manager Product:

- ☐ Kick-Off Meeting Agenda

Task 1.2 Critical Project Review (CPR) Meetings

The goal of this task is to determine if the project should continue to receive Energy Commission funding to complete this Agreement and to identify any needed modifications to the tasks, products, schedule or budget.

CPRs provide the opportunity for frank discussions between the Energy Commission and the Recipient. CPRs generally take place at key, predetermined points in the Agreement, as determined by the Commission Project Manager and as shown in the Technical Task List above. However, the Commission Project Manager may schedule additional CPRs as necessary, and, if necessary, the budget will be reallocated to cover the additional costs borne by the Recipient, but the overall grant amount will not increase.

Participants include the Commission Project Manager and the Recipient and may include the Commission Grants Officer, the Public Interest Energy Research (PIER) Program Team Lead, other Energy Commission staff and Management as well as other individuals selected by the Commission Project Manager to provide support to the Energy Commission.

The Commission Project Manager shall:

- ☐ Determine the location, date, and time of each CPR meeting with the Recipient. These meetings generally take place at the Energy Commission, but they may take place at another location.
- ☐ Send the Recipient the agenda and a list of expected participants in advance of each CPR. If applicable, the agenda shall include a discussion on both match funding and permits.
- ☐ Conduct and make a record of each CPR meeting. One of the outcomes of this meeting will be a schedule for providing the written determination described below.
- ☐ Determine whether to continue the project, and if continuing, whether or not modifications are needed to the tasks, schedule, products, and/or budget for the remainder of the Agreement. Modifications to the Agreement may require a formal amendment (please see the Terms and Conditions). If the Commission Project Manager concludes that satisfactory progress is not being made, this conclusion will be referred to the Energy Commission's Research, Development and Demonstration (RD&D) Policy Committee for its concurrence.
- ☐ Provide the Recipient with a written determination in accordance with the schedule. The written response may include a requirement for the Recipient to revise one or more product(s) that were included in the CPR.

The Recipient shall:

- ☐ Prepare a CPR Report for each CPR that discusses the progress of the Agreement toward achieving its goals and objectives. This report shall include recommendations and conclusions regarding continued work of the projects. This report shall be submitted along with any other products identified in this scope of work. The Recipient shall submit these documents to the Commission Project Manager and any other designated reviewers at least 15 working days in advance of each CPR meeting.
- ☐ Present the required information at each CPR meeting and participate in a discussion about the Agreement.

Commission Project Manager Products:

- ☐ Agenda and a list of expected participants
- ☐ Schedule for written determination
- ☐ Written determination

Recipient Product:

- ☐ CPR Report(s)

Task 1.3 Final Meeting

The goal of this task is to closeout this Agreement.

The Recipient shall:

- ☐ Meet with Energy Commission staff to present the findings, conclusions, and recommendations. The final meeting must be completed during the closeout of this Agreement.

This meeting will be attended by, at a minimum, the Recipient, the Commission Grants Office Officer, and the Commission Project Manager. The technical and administrative aspects of Agreement closeout will be discussed at the meeting, which may be two separate meetings at the discretion of the Commission Project Manager.

The technical portion of the meeting shall present an assessment of the degree to which project and task goals and objectives were achieved, findings, conclusions, recommended next steps (if any) for the Agreement, and recommendations for improvements. The Commission Project Manager will determine the appropriate meeting participants.

The administrative portion of the meeting shall be a discussion with the Commission Project Manager and the Grants Officer about the following Agreement closeout items:

- ☐ What to do with any equipment purchased with Energy Commission funds (Options).
- ☐ Energy Commission's request for specific "generated" data (not already provided in Agreement products).
- ☐ Need to document Recipient's disclosure of "subject inventions" developed under the Agreement.
- ☐ "Surviving" Agreement provisions, such as repayment provisions and confidential Products.
- ☐ Final invoicing and release of retention.
- ☐ Prepare a schedule for completing the closeout activities for this Agreement.

Products:

- ☐ Written documentation of meeting agreements
- ☐ Schedule for completing closeout activities

Task 1.4 Quarterly Progress Reports

The goal of this task is to periodically verify that satisfactory and continued progress is made towards achieving the research objectives of this Agreement on time and within budget.

The objectives of this task are to summarize activities performed during the reporting period, to identify activities planned for the next reporting period, to identify issues that may affect performance and expenditures, and to form the basis for determining whether invoices are consistent with work performed.

The Recipient shall:

- ☐ Prepare a Quarterly Progress Report which summarizes all Agreement activities conducted by the Recipient for the reporting period, including an assessment of the ability to complete the Agreement within the current budget and any anticipated cost overruns. Each progress report is due to the Commission Project Manager within 10 days of the end of the reporting period. The recommended specifications for each progress report are contained in the terms and conditions of this Agreement.

Product:

- ☐ Quarterly Progress Reports

Task 1.5 Final Report

The goal of the Final Report is to assess the project's success in achieving its goals and objectives, advancing science and technology, and providing energy-related and other benefits to California.

The objectives of the Final Report are to clearly and completely describe the project's purpose, approach, activities performed, results, and advancements in science and technology; to present a public assessment of the success of the project as measured by the degree to which goals and objectives were achieved; to make insightful observations based on results obtained; to draw conclusions; and to make recommendations for further RD&D projects and improvements to the PIER project management processes.

The Final Report shall be a public document. If the Recipient has obtained confidential status from the Energy Commission and will be preparing a confidential version of the Final Report as well, the Recipient shall perform the following activities for both the public and confidential versions of the Final Report.

The Recipient shall:

- ☐ Prepare an Outline of the Final Report.
- ☐ Prepare a Final Report following the approved outline and the latest version of the PIER Final Report guidelines published on the Energy Commission's website at <http://www.energy.ca.gov/contracts/pier/contractors/index.html> at the time the Recipient begins performing this task, unless otherwise instructed in writing by the Commission Project Manager. Instead of the timeframe listed in the Product Guidelines located in Section 5 of the Terms and Conditions, the Commission Project Manager shall provide written

comments on the Draft Final Report within fifteen (15) working days of receipt. The Final Report must be completed on or before the end of the Agreement Term.

- ☐ Submit one bound copy of the Final Report with the final invoice.

Products:

- ☐ Draft Outline of the Final Report
- ☐ Final Outline of the Final Report
- ☐ Draft Final Report
- ☐ Final Report

Task 1.6 Identify and Obtain Matching Funds

The goal of this task is to ensure that the match funds planned for this Agreement are obtained for and applied to this Agreement during the term of this Agreement.

The costs to obtain and document match fund commitments are not reimbursable through this Agreement. Although the PIER budget for this task will be zero dollars, the Recipient may utilize match funds for this task. Match funds shall be spent concurrently or in advance of PIER funds for each task during the term of this Agreement. Match funds must be identified in writing and the associated commitments obtained before the Recipient can incur any costs for which the Recipient will request reimbursement.

The Recipient shall:

- ☐ Prepare a letter documenting the match funding committed to this Agreement and submit it to the Commission Project Manager at least 2 working days prior to the kick-off meeting. If no match funds were part of the proposal that led to the Energy Commission awarding this Agreement and none have been identified at the time this Agreement starts, then state such in the letter. If match funds were a part of the proposal that led to the Energy Commission awarding this Agreement, then provide in the letter a list of the match funds that identifies the:
 - Amount of each cash match fund, its source, including a contact name, address and telephone number and the task(s) to which the match funds will be applied.
 - Amount of each in-kind contribution, a description, documented market or book value, and its source, including a contact name, address and telephone number and the task(s) to which the match funds will be applied. If the in-kind contribution is equipment or other tangible or real property, the Recipient shall identify its owner and provide a contact name, address and telephone number, and the address where the property is located.
- ☐ Provide a copy of the letter of commitment from an authorized representative of each source of cash match funding or in-kind contributions that these funds or contributions have been secured.

- ☐ Discuss match funds and the implications to the Agreement if they are reduced or not obtained as committed, at the kick-off meeting. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.
- ☐ Provide the appropriate information to the Commission Project Manager if during the course of the Agreement additional match funds are received.
- ☐ Notify the Commission Project Manager within 10 days if during the course of the Agreement existing match funds are reduced. Reduction in match funds must be approved through a formal amendment to the Agreement and may trigger an additional CPR.

Products:

- ☐ A letter regarding match funds or stating that no match funds are provided
- ☐ Copy(ies) of each match fund commitment letter(s) (if applicable)
- ☐ Letter(s) for new match funds (if applicable)
- ☐ Letter that match funds were reduced (if applicable)

Task 1.7 Identify and Obtain Required Permits

The goal of this task is to obtain all permits required for work completed under this Agreement in advance of the date they are needed to keep the Agreement schedule on track.

Permit costs and the expenses associated with obtaining permits are reimbursable under this Agreement. Permits must be identified in writing before the Recipient can incur any costs related to the use of permit(s) for which the Recipient will request reimbursement.

The Recipient shall:

- ☐ Prepare a letter documenting the permits required to conduct this Agreement and submit it to the Commission Project Manager at least 2 working days prior to the kick-off meeting. If there are no permits required at the start of this Agreement, then state such in the letter. If it is known at the beginning of the Agreement that permits will be required during the course of the Agreement, provide in the letter:
 - A list of the permits that identifies the:
 - Type of permit.
 - Name, address and telephone number of the permitting jurisdictions or lead agencies.
 - The schedule the Recipient will follow in applying for and obtaining these permits.
- ☐ Discuss the list of permits and the schedule for obtaining them at the kick-off meeting and develop a timetable for submitting the updated list, schedule and the copies of the permits. The implications to the Agreement if the permits are not obtained in a timely fashion or are denied

will also be discussed. If applicable, permits will be included as a line item in the Progress Reports and will be a topic at CPR meetings.

- ☐ If during the course of the Agreement additional permits become necessary, provide the appropriate information on each permit and an updated schedule to the Commission Project Manager.
- ☐ As permits are obtained, send a copy of each approved permit to the Commission Project Manager.
- ☐ If during the course of the Agreement permits are not obtained on time or are denied, notify the Commission Project Manager within 10 days. Either of these events may trigger an additional CPR.

Products:

- ☐ Letter documenting the permits or stating that no permits are required
- ☐ A copy of each approved permit (if applicable)
- ☐ Updated list of permits as they change during the term of the Agreement (if applicable)
- ☐ Updated schedule for acquiring permits as changes occur during the term of the Agreement (if applicable)

TECHNICAL TASKS

TASK 2 GATHER AND SUMMARIZE IN-DEPTH BACKGROUND INFORMATION ABOUT EACH CITY

The goal of this task is to quantitatively characterize each city using data collected by the US Census as well as applicable local and regional transportation and energy use surveys. Qualitatively characterize each city using existing literature related to the city, including but not limited to official city documents and website information, previous case studies of the city (focused on other topics), and maps.

The Recipient shall:

- ☐ Quantitatively characterize each city using US Census data and energy use surveys.
- ☐ Qualitatively characterize each city using existing literature related to the city.

Product: Technical memorandum on the relevant background data for each case study city, including charts and maps where applicable

TASK 3 GATHER AND SUMMARIZE ALL CITY DOCUMENTATION RELATED TO CITY ENERGY USE AND GREENHOUSE GAS EMISSIONS

The goal of this task is to gather and summarize all city documentation related to city energy use and greenhouse gas emissions.

The Recipient shall:

- ☐ Summarize city documentation related to energy use and greenhouse gas emissions. This documentation will include the city's Climate Action Plan and any existing greenhouse gas emission inventories, and may include additional information as it is available.

Product: Written summaries of the relevant city documentation for each case study city (No draft)

TASK 4 DOCUMENTATION OF PHYSICAL URBAN INFRASTRUCTURE

The goal of this task is to have the Recipient team travel to each city in groups of at least two researchers, visiting as many neighborhoods as possible to document existing opportunities for and barriers to climate-friendly living. Note pedestrian, bicycle, and transit facilities, and take photographs. Also note building characteristics such as approximate age, height, and energy-saving physical orientation, and take photographs.

The Recipient shall:

- ☐ Visiting as many neighborhoods as possible to document existing opportunities for and barriers to climate-friendly living.
- ☐ Note pedestrian, bicycle, and transit facilities, and take photographs.
- ☐ Note building characteristics such as approximate age, height, and energy-saving physical orientation, and take photographs.

Product: Written narrative descriptions plus photographs of the state of each city's physical infrastructure and its implications for greenhouse gas emissions (No draft)

TASK 5 IDENTIFY AND INTERVIEW STAKEHOLDERS

The goal of this task is to have the Recipient identify and interview individuals who have been involved in city decision making on energy use and greenhouse gas emissions, including both city officials and other local stakeholders. A semi-structured interview methodology will be used. The goal of these interviews will be to pinpoint local circumstances that presented both opportunities for and barriers to policy adoption and implementation.

The Recipient shall:

Identify and interview individuals who have been involved in city decision making on energy use and greenhouse gas emissions, including both city officials and other local stakeholders.

Product: Tape recordings and/or detailed notes from each interview (No draft)

TASK 6 COMPILE EMISSIONS INVENTORIES FOR LIGHT-DUTY VEHICLES

The goal of this task is to have the Recipient compile 10 years of light-duty vehicle greenhouse gas emissions inventories for each city using data from the CA Department of Motor Vehicles and the CA Bureau of Automotive Repair (1998-2007).

The Recipient shall:

Compile 10 years of light-duty vehicle greenhouse gas emissions inventories for each city using data from the CA Department of Motor Vehicles and the CA Bureau of Automotive Repair (1998-2007).

Product: Light-duty vehicle greenhouse gas emission inventories by home zip code. Write-up of methodology used to compile the inventories, including detailed discussion of any and all assumptions (No draft)

TASK 7 COMPILE EMISSIONS INVENTORIES FOR BUILDINGS

The goal of this task is to have the Recipient compile greenhouse gas emissions inventories for residential building energy use in each city, and will attempt to disaggregate the inventories by zip code. If the data is available, greenhouse gas emissions from commercial building energy use will be included. Data will be obtained either from the cities themselves, from local electric and natural gas utilities, or from the CA Energy Commission. If time series data is available, inventories will be compiled for 10 years.

The Recipient shall:

- ☐ Compile greenhouse gas emissions inventories for residential building energy use in each city, and will attempt to disaggregate the inventories by zip code.
- ☐ Include greenhouse gas emissions from commercial building energy use if available.

Product: Building energy use greenhouse gas emission inventories. Write-up of methodology used to compile the inventories, including detailed discussion of any and all assumptions (No draft)

TASK 8 TEAM MEETING (HALF-DAY)

The goal of this task is to have the multidisciplinary Recipient research team gather for a half-day meeting. The purpose of this meeting will be to bring the entire group up to date on findings thus far for each city, and to identify common findings across cities, as well as factors that might lead to the differences that we see. This meeting will be used as a brainstorming session for “lessons learned” paper. The Energy Commission representative is invited to attend this meeting.

The Recipient shall:

Create a meeting for the multidisciplinary Recipient research team to brainstorm for a “lessons learned” paper.

Product: Notes from this brainstorming session

TASK 9 WRITE ~~FIVE~~ EIGHT CASE STUDIES

The goal of this task is to have the final report consist of an introduction, these ~~five~~ eight case studies, and the “lessons learned” paper.

The Recipient shall:

Create a final report on the 5 case studies.

Product : Final written case studies (No draft)

TASK 10 WRITE “LESSONS LEARNED” PAPER

The goal of this task is to have the final report consist of an introduction, the ~~five~~ eight case studies, and this “lessons learned” paper.

The Recipient shall:

Create a final report on the “lessons learned”.

Product : Final written “lessons learned” paper (No draft)

TASK 11 TECHNICAL PRESENTATIONS, FACT SHEETS, AND WEBPAGE DEVELOPMENT

The researcher(s) will be available for at most two presentations, which may include presentations at the PIER annual conferences on climate change. The researchers will also prepare a fact sheet and other materials that the Energy Commission can utilize to develop a webpage for this project.

The Recipient Shall:

- ☐ Attend the PIER Annual Conference(s) on Climate Change.
- ☐ Prepare materials needed for the presentations.
- ☐ Present project results at the conference(s).
- ☐ Prepare a fact sheet and provide materials that the Energy Commission can utilize to develop a webpage for this project.

Products:

- ☐ As needed, materials for conference presentation(s)
- ☐ Text, graphs, and/or pictures for the fact sheet and webpage (No draft)